

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and lists, of claims in the application:

1. (Currently amended) A fast scanning stage for a scanning probe microscope, said scanning probe microscope including a probe, said fast scanning stage comprising, ~~at least one~~ a fixed support, and a sample stage having at least one axis of translation, said sample stage being affixed to said ~~at least one~~ fixed support by means for causing displacement of said sample stage relative to said probe, wherein said means for causing displacement comprises actuator elements extending between said fixed support and said sample stage and wherein said means for causing displacement is responsive to the application of a bias voltage of 100 volts or less and wherein said scanning probe microscope is a fast atomic force microscope (AFM) with a scanning stage resonance frequency between about ~~250~~ 500 Hz to about ~~7.5~~ 5 kHz.
2. (Currently amended) A fast scanning stage for a scanning probe microscope, said scanning probe microscope including a probe, said fast scanning stage comprising ~~at least one~~ a fixed support and a sample stage having at least one axis of translation, said sample stage being affixed to said ~~at least one~~ fixed support by means for causing displacement of said sample stage relative to said probe, and in which said means for causing displacement of said sample comprises actuator elements extending between said fixed support and said sample stage ~~comprise at least one actuator element supporting said stage~~ and a sine waveform generator for actuating said ~~at least one~~ actuator elements through the application of a bias voltage of 100 volts or less, wherein said scanning probe microscope is a fast atomic force microscope (AFM) with a scanning stage resonance frequency between about ~~250~~ 500 Hz to about ~~7.5~~ 5 kHz.
3. (Previously presented) A fast scanning stage as claimed in claim 2 in which said means

Serial No. 10/725,769

Docket : 10060298/MOL 0077 PA/40518.112

for causing displacement of said sample stage comprise four actuator elements supporting said sample stage.

4. (Currently amended) A fast scanning stage for a scanning probe microscope, said scanning probe microscope including a probe, said fast scanning stage comprising ~~at least one~~ a fixed support and a sample stage having at least one axis of translation, said sample stage being affixed to said ~~at least one~~ fixed support by ~~at least one~~ actuator elements extending between said fixed support and said sample stage, a sine waveform generator for actuating said ~~at least one~~ actuator elements, in which said sample stage is displaced by said ~~at least one~~ actuator elements being driven at the frequency of resonant vibration through the application of a bias voltage of 100 volts or less corresponding to translation of said sample stage with respect to said probe, wherein said scanning probe microscope is a fast atomic force microscope (AFM) with a scanning stage resonance frequency between about ~~250~~ 500 Hz to about ~~7.5~~ 5 kHz.

5. (Previously presented) A fast scanning stage as claimed in claim ~~3~~ 4 in which said sample stage has a square or rectangular configuration and each corner of said sample stage is supported by one of said actuator elements.

6. (Original) A fast scanning stage as claimed in claim 5 in which said actuator elements form a parallelogram scanning element.

7. (Original) A fast scanning stage as claimed in claim 6 in which said actuator elements are connected electrically in parallel.

8. (Currently amended) A fast scanning stage as claimed in claim 2 in which ~~said~~ at least one of said actuator elements comprises a stack bending element.

9. (Currently amended) A fast-axis scanning stage as claimed in claim 2 in which ~~said~~ at least one of said actuator elements comprises a PZT bimorph.

Serial No. 10/725,769

Docket : 10060298/MOL 0077 PA/40518.112

10. (Currently amended) A fast-axis scanning stage as claimed in claim 3 in which ~~said~~ at least one of said actuator elements comprises a PZT bimorph.

11. (Previously presented) A fast-axis scanning stage as claimed in claim 1 in which said sample stage is comprised of a material selected from the group consisting of ceramics, heat resistant polymers, and anodized aluminum.

12. (Currently amended) A scanning probe microscope including a probe and a fast scanning stage, said fast scanning stage comprising ~~at least one~~ a fixed support, and a sample stage having at least one axis of translation, said sample stage being affixed to said ~~at least one~~ fixed support by ~~at least one~~ actuator elements extending between said fixed support and said sample stage and supporting said sample stage to cause displacement ~~through the application of a bias voltage of 100 volts or less of said sample stage relative to said probe~~ through the application of a bias voltage of 100 volts or less, wherein said scanning probe microscope is a fast atomic force microscope (AFM) with a scanning stage resonance frequency between about ~~250~~ 500 Hz to about ~~7.5~~ 5 kHz.

13. (Currently amended) A method of operating a fast scanning stage for a scanning probe microscope, said scanning probe microscope including a probe, said method comprising, providing a sample stage having a sample thereon and causing displacement ~~through the application of a bias voltage of 100 volts or less of said sample on said sample stage relative to said probe by actuating~~ at least one actuator elements extending between said sample stage and a fixed support, wherein said actuator elements ~~to~~ drive said sample stage at the resonant frequency of said sample stage using a sine waveform generator through the application of a bias voltage of 100 volts or less, wherein said scanning probe microscope is a fast atomic force microscope (AFM) with a scanning stage resonance frequency between about ~~250~~ 500 Hz to about ~~7.5~~ 5 kHz.

14. Canceled.

Serial No. 10/725,769

Docket : 10060298/MOL 0077 PA/40518.112

15. (Previously presented) A method as claimed in claim 13 in which the resonant frequency of said sample stage is about $1/100^{\text{th}}$ that of the resonant frequency of said probe.